

Section 1

Project Purpose and Need

1.1 Background

When the New Jersey Turnpike was constructed 50 years ago, its purpose was to provide faster, more efficient travel for north-south trips, such as those between New York City/points north and Philadelphia/points south. The New Jersey Turnpike became the route of choice for north-south trips, replacing the use of US Route 1 and US Route 130, which were designed and built to older standards. A location map is provided in Figure 1-1.

While the New Jersey Turnpike continues to fulfill its role of serving mid-Atlantic transportation needs, US Route 1 remains a favored route for trips between northern Middlesex County (where many of the state's largest highways converge), the Princeton area (an area of significant economic and housing growth in NJ), and the Trenton NJ Capital City area. For a distance of 22 miles, from the northeast Trenton area to the New Brunswick area, US Route 1 and the New Jersey Turnpike exist as nearly parallel north-south highways, about 6 miles apart (see Figure 1-2).

In the New Brunswick area, US Route 1 connects to the New Jersey Turnpike, via a short (one mile) segment of Route 18, at Turnpike Interchange 9. In the Trenton area US Route 1 is connected to the New Jersey Turnpike via an eight mile section of Interstate 195 and 295, at Turnpike Interchange 7A. Major traffic congestion occurs on US Route 1 between the Trenton area and the New Brunswick area, attributable to the strong economic and population growth trends and the suburban character of the land development that has occurred. In spite of its proximity, the traffic congestion on US Route 1 cannot effectively be relieved by available capacity on the New Jersey Turnpike, in part because no arterial highway connection exists that links US Route 1 to the New Jersey Turnpike between Interchange 9 and Interchange 7A. Alternative routes for motorists between New Brunswick and Trenton are limited, and increasingly involve use of local roadways.

The project study area municipalities are located in southwestern Middlesex County and northeastern Mercer County, and are shown in Figure 1-3. The project study area is generally bounded on the south by Trenton and on the north by New Brunswick. The map in Figure 1-4 illustrates the existing land use patterns, and the functional classification of roadways that serve the communities in the study area (Plainsboro, South Brunswick, Cranbury, West Windsor, and East Windsor Townships).

Since 1980, strong population and employment growth has occurred in the communities along US Route 1 between New Brunswick and Trenton. In particular, the population of Plainsboro Township (for location, see Figure 1-3) increased by 261 percent in the years 1980-2000 — more than any other municipality in Middlesex County (comparatively, population for Middlesex County as a whole increased 26 percent over the same period).

Projection: Universal Transverse Mercator
Coordinate System: State Plane
Datum: NAD83

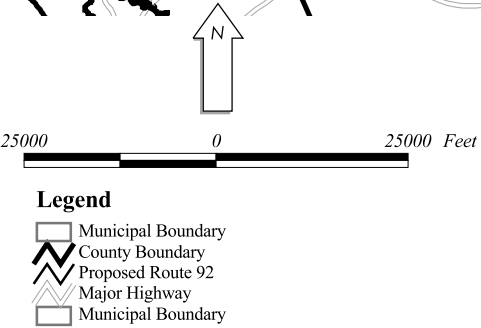
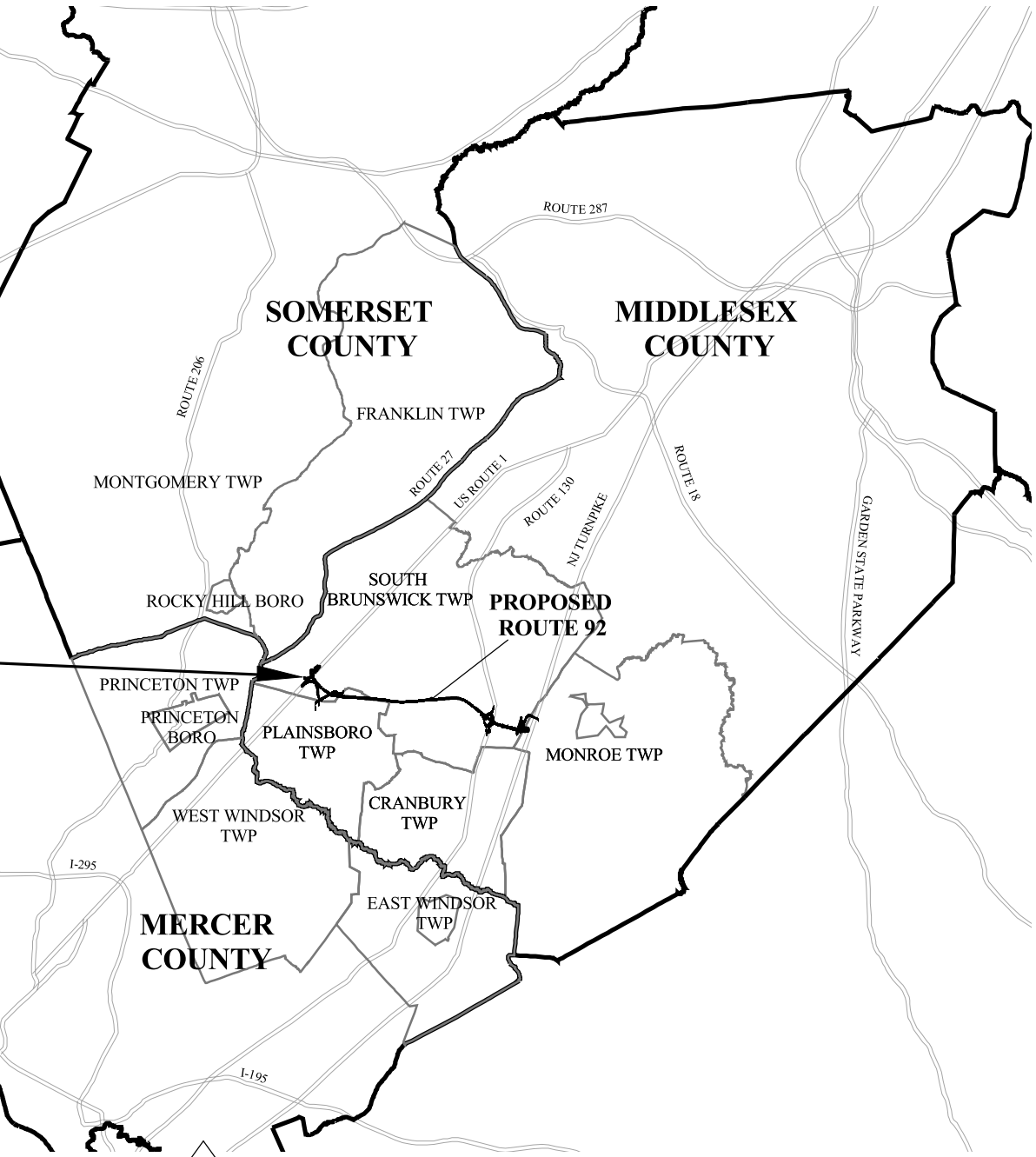
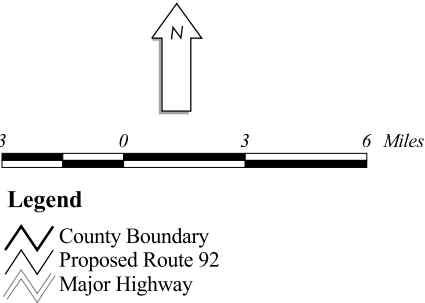
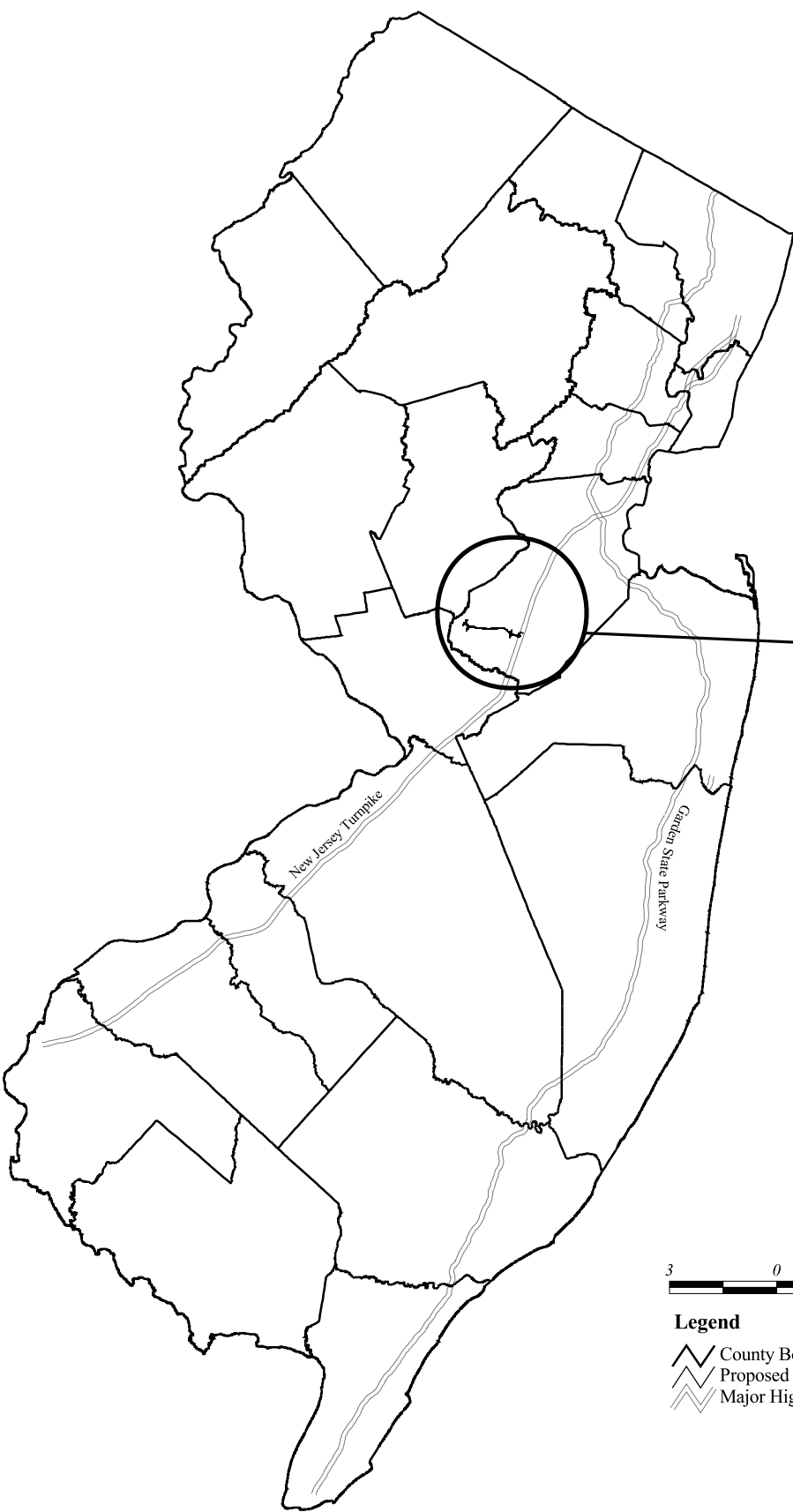
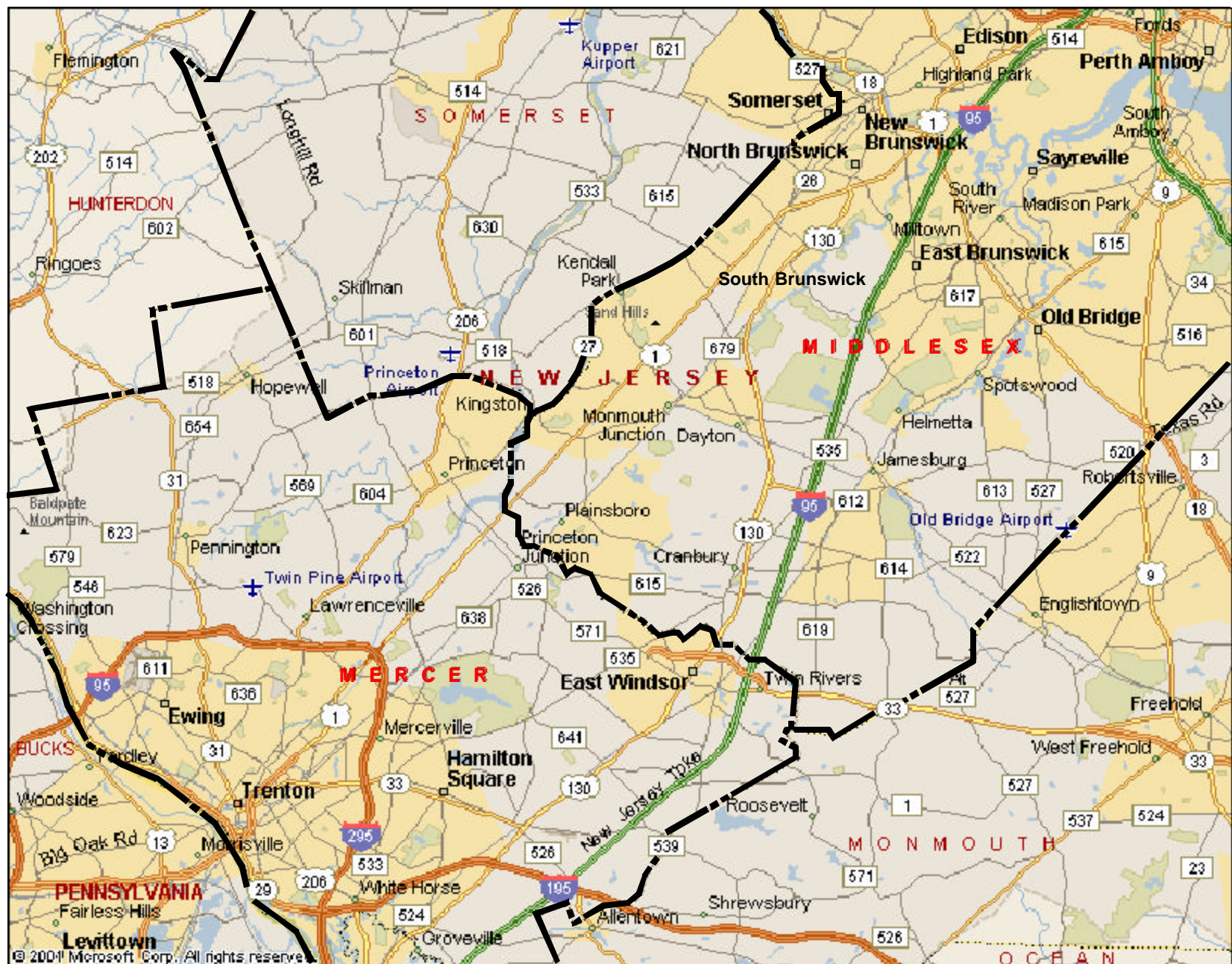


Figure 1-1

Location Map

US Army Corps of Engineers
Proposed Route 92
Environmental Impact Statement

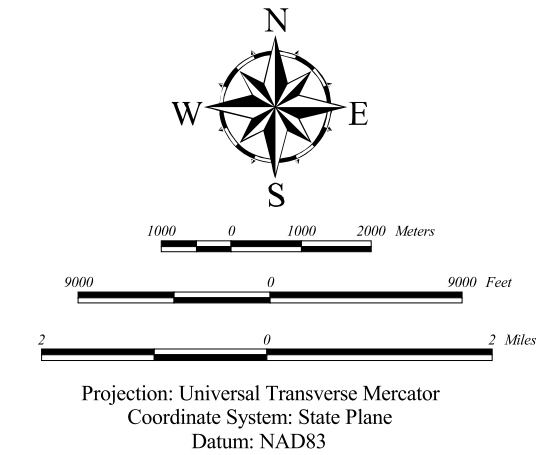
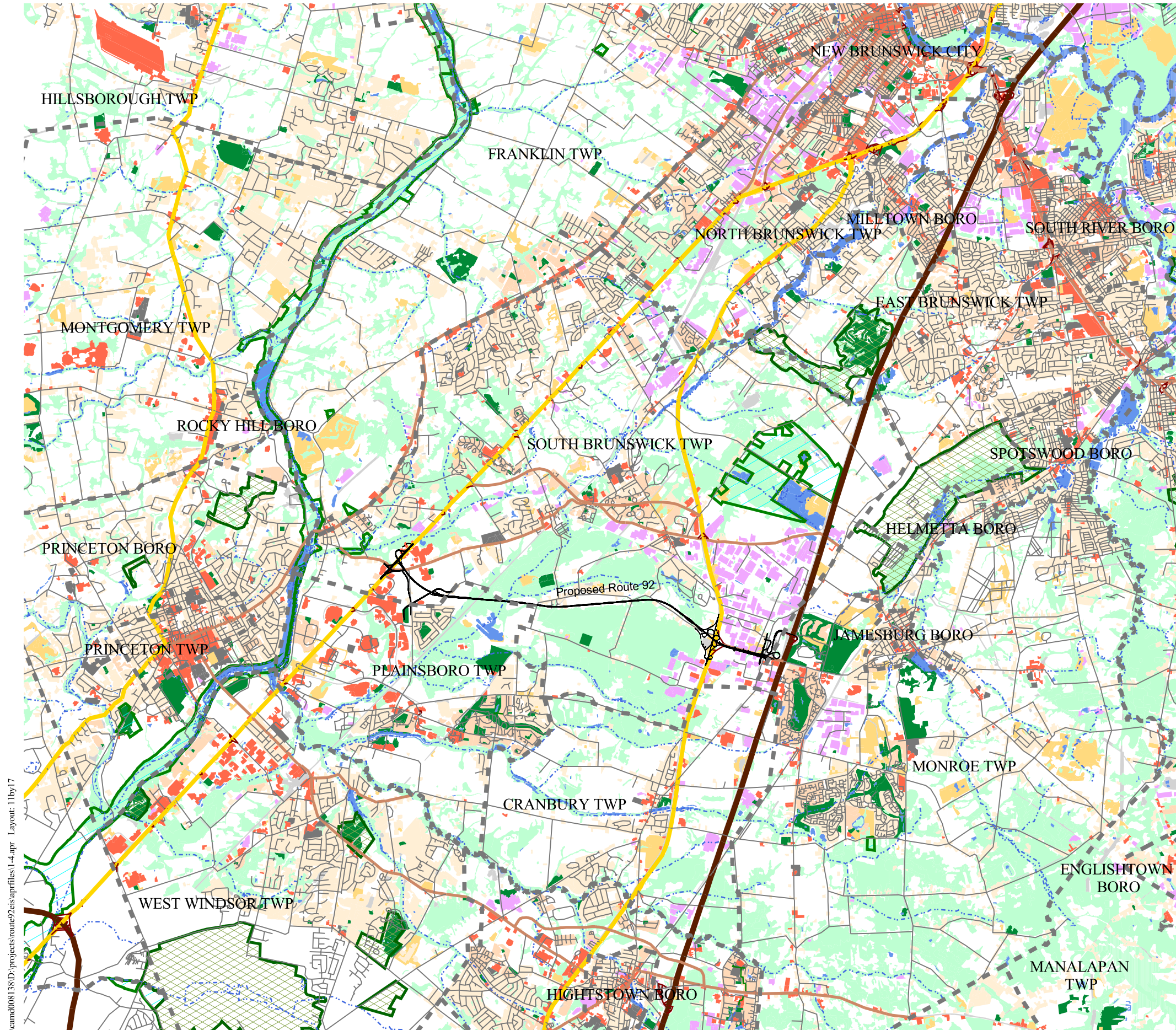


Legend:

County Boundary



0 mi 4 mi 8 mi
Approximate Scale



Legend

- Municipal Boundary
- Proposed Route
- Streams

Functional Classification of Roads

- Primary road with limited access
- US Highways
- Secondary and connecting roads/State Highways
- Local Roads
- Access Ramps/Limited Access Interchange
- Walkways/Trails

Parks (State Plan)

- COUNTY PARK
- STATE PARK

NJDEP 1995 Land Use/Land Cover

- SCHOOLS/ATHLETIC FIELDS
- BARREN LAND
- COMMERCIAL/SERVICES
- INDUSTRIAL/COMMERCIAL COMPLEXES
- PARKS/RECREATIONAL LAND
- RESIDENTIAL, HIGH DENSITY, MULTIPLE DWELLING
- RESIDENTIAL, RURAL, SINGLE UNIT
- TRANSPORTATION/COMMUNICATIONS/UTILITIES
- WATER
- WETLANDS

Figure 1-4

Regional Road Network and Land Use Patterns

US Army Corps of Engineers
Proposed Route 92
Environmental Impact Statement



CDM

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The population of West Windsor Township (in the area of County Route 571) grew 156 percent from 1980 to 2000, as compared with 14 percent for all of Mercer County.

Continued rapid growth is projected in the central New Jersey region over the next two decades, based on the strong economy in the area, high demand for housing, the presence of developable land, good schools, and the desirable location between Princeton University and Rutgers University. Significant office and research development has occurred in the Princeton region, a function of the availability of a highly educated labor force. In addition, a national-scale warehousing and distribution center has developed around NJ Turnpike Interchange 8A. The office, commercial, and population growth along US Route 1, coupled with the extensive warehousing and business activity around NJ Turnpike Interchange 8A, has resulted in increased traffic volumes on the area's roads, which consist of US Route 1, US Route 130, and local and secondary east-west roads.

Two frequently observed effects of the increasing traffic volumes using US Route 1 and regional roadways are:

1. extensive traffic congestion occurs throughout this suburban region, and,
2. substantial and increasing volumes of "through" traffic, delivering goods and commerce between business "centers" compete for space on the roadway system with traffic having local work, shopping, and recreational destinations.

Through traffic is traffic that is unrelated to the towns and communities that these roads serve, and is defined as trips having neither the trip origin nor destination in the town (or towns) served by that particular portion of road. Through traffic is also referred to as "non-local" or "regional" traffic.

Traffic modeling conducted for this Environmental Impact Statement (EIS) indicates that by 2028, about 25 percent of the traffic on the local east-west roads will be through traffic (see Appendix C, specifically the data for the "No-Build" alternative on pages C-307 through C-317). The presence of through traffic exacerbates the heavy congestion on the road system, impeding the local traffic circulation and roadway access needed by local residents and businesses.

Construction of a new east-west arterial highway is proposed by the New Jersey Turnpike Authority (NJTA) to provide a high capacity, high speed link between the major north-south highways in central New Jersey, and between the growing business, commercial, and population centers, thus improving regional travel mobility. An arterial highway is defined by the NJ Dept. of Transportation as a highway primarily for through traffic, usually a continuous route.

The arterial highway proposed by the NJ Turnpike Authority would improve mobility by accommodating the increasing through traffic on a high-speed limited-access

highway, thereby reducing local roadway congestion by removing through traffic from local roads. It would also improve regional mobility by providing efficient access to alternative routes for north-south traffic that now uses US Route 1, and it would provide flexibility in choice of route in the event of traffic congestion or delay along any of the north-south corridors.

Between the Trenton area and the New Brunswick area (see Figure 1-2) only local and/or secondary (county) roads are available to traffic traveling between US Route 1 and the New Jersey Turnpike (connecting at Turnpike Interchanges 8A or 8). When congestion, or less frequently occurring events such as vehicular accidents or roadway maintenance occur on one of the north-south highways, travelers cannot efficiently change their route so as to utilize alternative north-south highway routes (for example, by switching their route to utilize the New Jersey Turnpike or US Route 130, instead of US Route 1, or vice versa). Because the local and secondary east-west connecting roads are increasingly congested, and are not designed to carry traffic at highway speeds, the New Jersey Turnpike cannot be effectively accessed so that it might serve as an alternate north-south travel route to US Route 1.

The capacity of the New Jersey Turnpike was expanded in central New Jersey in the 1980s, and NJTA studies show that there is currently adequate capacity on the mainline New Jersey Turnpike to accommodate regional traffic from the congested US Route 1 corridor; however, NJTA is currently planning a mainline widening to ensure that sufficient capacity continues to be available.

NJTA looks to couple improved east-west mobility with support of coordinated efforts to reshape existing and proposed development. This effort would involve the participation of the project area municipalities and state agencies, including NJTA. While NJTA does not have direct control or jurisdiction over the land development approval process, it seeks to collaborate with the NJ Department of Environmental Protection (NJDEP), the NJ Office of Smart Growth, the NJ Department of Transportation (NJDOT), the counties of Mercer and Middlesex, and local municipalities to help shape future growth into sustainable patterns.

A new east-west highway in southwestern Middlesex County has been discussed by Middlesex County Planning Board and NJDOT for decades, to address the lack of east-west highway connectivity in this area. In 1992, the New Jersey State Legislature enacted a law transferring authority over the Route 92 project from NJDOT to NJTA. The law, Chapter 474 of the Public Laws of 1991, now codified as NJSA 27:23-23.8, contained the following authorization:

“The New Jersey Turnpike Authority is authorized to acquire, construct, maintain, repair and operate a project addition and extension to the New Jersey Turnpike consisting of a high speed limited-access superhighway beginning at or near Interchange 8A of the New Jersey Turnpike and thence in a general westerly direction through Middlesex County to an interchange with U.S. Route 1 in the general vicinity of the intersection of U.S. Route 1 and

Ridge Road (County Road 522) or U.S. Route 27 as the authority, after study, deems appropriate."

Since 1992, NJTA has further developed the concept of this toll-supported east-west arterial highway through a series of engineering and environmental studies. NJTA applied to the US Army Corps of Engineers (USACE) for a federal Clean Water Act permit seeking approval of proposed wetland fill related to construction of proposed Route 92. In its review, USACE has determined that a decision upon this permit application would be a major federal action significantly affecting the quality of the human environment. This determination under the National Environmental Policy Act called for USACE to prepare an EIS. An EIS provides a broad range of information and analysis designed to assist the permitting agency in reaching an informed decision on the permit application.

1.2 Transportation Needs in the Project Area

1.2.1 Existing Roadway Network

The traffic study area that this EIS analyzes consists of the towns of South Brunswick, Plainsboro, and Cranbury in southwestern Middlesex County; and the townships of West Windsor and East Windsor (including Hightstown) in northeastern Mercer County (Figure 1-3). These towns cover an area that is roughly bounded by the New Jersey Turnpike to the east, NJ Route 27 and the Delaware and Raritan Canal to the west, County Route 610 (Deans Lane) to the north, and County Route 571 on the south.

The main highways passing through this area are all oriented in a north-south direction: the New Jersey Turnpike (with Interchanges 8 and 8A along the area's eastern edge) and US Route 130 on the eastern side of the area, and US Route 1 and NJ Route 27 on the area's western side. NJ Route 32 provides a one mile connecting highway between US Route 130 and the Turnpike at Interchange 8A.

A series of east-west local and secondary roads connect to the four north-south highways in the Traffic Study Area, providing access to the towns and serving local circulation needs. Two lane east-west roads include County Route 610 (Deans Lane), Major Road, New Road, County Route 522, Ridge Road, Friendship Road, Broadway Road, Dey Road, Scudders Mill Road, Plainsboro Road, Cranbury Neck Road, and County Route 571. Four lane east-west roads include County Route 522 between NJ Route 27 and US Route 130, Scudders Mill Road between US Route 1 and Dey Road, and County Route 571 between Alexander Road and Hightstown. Some of these local and secondary roads, either individually (such as County Routes 522 and 571) or in combination (such as Dey Road and Scudders Mill Road) provide continuous routes between the eastern and western sides of the study area.

1.2.2 Roadway Network Performance

Residential, commercial, and industrial land use in southwestern Middlesex County and northeastern Mercer County is generally concentrated along the major north-south

highways and interchanges in the area, namely US Route 1, US Route 130, NJ Route 27, and the New Jersey Turnpike (at Interchange 8A). The major peak hour traffic flows in the traffic study area are the north-south flows along the New Jersey Turnpike, US Route 1, and US Route 130 (see figures 3-15 and 3-16, in Section 3).

Within the 25-mile corridor along US Route 1 — between Route 18 in New Brunswick and Interstate 195/Route 29 in southern Mercer County — motorists wishing to travel from one existing north-south corridor to another must use local and county east-west roads passing through suburban communities in Plainsboro, South Brunswick, Cranbury, West Windsor, and East Windsor Townships, or travel along US Route 1 to link to the connecting north-south highways. The principal local and county east-west roads used include County Route 571, County Route 615 (Cranbury Neck Road), County Route 614 (Plainsboro Road), Scudders Mill Road/Dey Road, and County Route 522/Ridge Road. North-south travelers frequently use these local and secondary east-west roads in an effort to bypass congestion on US Route 1. Traffic information for these roads shows them to be burdened by increasing local and regional traffic.

Intensive development of new homes and businesses in southwestern Middlesex County and northeastern Mercer County has resulted in steadily worsening congestion. Traffic modeling conducted for this EIS indicates that congestion will significantly worsen in the future. County and State planners have forecast that historically strong development trends will continue, but planned County and NJDOT increases in roadway capacity are limited. The high peak-hour north-south volumes cause some delays at signals, particularly along US Route 1. However, severe congestion in the traffic study area also occurs on the two-lane east-west roads, such as Ridge Road, Dey Road, Cranbury Neck Road, and Plainsboro Road. Regional and local mobility continues to deteriorate as travel demand increases.

Traffic modeling conducted for this EIS shows that large volumes of through traffic use local and county roads, which impedes the local circulation and access that the local roads were built to provide. In order to provide an orderly land use and circulation plan, it is desirable to serve longer-distance, higher-speed traffic on facilities that are separated from community features such as residential areas, neighborhood shops and services, local retail establishments, parks, and schools. By diverting through traffic from the local roads serving neighborhood land uses to the arterial highway system, the character of a community can be enhanced and the quality of life improved, while local congestion is reduced.

When much of the road network exceeds capacity, even minor volumes of additional traffic, or any reduction in capacity (resulting from road maintenance or accident), may trigger the uncontrolled spread of capacity losses throughout the entire road network. As the road network becomes increasingly congested, it ultimately becomes unstable, and network analysis must be performed at the regional level to understand how the many instances of capacity deficiency might be interrelated. A capacity deficiency on

one road can spread and accumulate on roads behind the initial instance of capacity deficiency, thereby camouflaging identification of the initial deficiency.

As a road network approaches capacity, regional monitoring and analysis is essential to identify and sort out the issues that are truly causing congestion. The traffic model developed for this EIS coupled a regional model (and area of analysis) to a more detailed “Central (New) Jersey” area model (see Section 4.2.7.1 and Appendix C). The Central Jersey model contains a detailed representation of the road system -- from NJ Route 18 in the north to Mercer Co. Route 571 in the south, and from the New Jersey Turnpike and Middlesex Co. Route 535 on the east to NJ Route 27 on the west. The detailed local traffic model is “nested” within the 22-county regional traffic model developed for NJDOT’s Penns Neck Area EIS, prepared between 2001 and 2004. The regional model establishes travel characteristics specific to the study region relating to the orientation, mode choice, and route usage of relatively long trips, and also serves as the regional framework within which more detailed analysis of road system usage was conducted for the Central Jersey traffic study area.

By the year 2028, the traffic model projects that morning westbound peak hour travel demand will exceed the total capacity of the east-west roadways by 25 percent, assuming no major changes occur in road capacity. The peak-hour network model indicates that the capacity of Plainsboro Road will be exceeded by 120 percent, and that the capacity of Cranbury Neck Road will be exceeded by 84 percent. When travel demand exceeds road capacity the result is lengthy stretches of bumper-to-bumper traffic, extensive delays, and blocked driveways and intersections. As an example, the typical morning peak hour travel time from the intersection of US Route 130 and Dey Road to the intersection of US Route 1 and Washington Road (currently about 20 minutes) is projected to more than double. Area-wide, morning peak hour travel times are expected to increase by about 50 percent on average, as illustrated in Table 1-1. Almost all key intersections in the area will be unable to process peak hour demand in the future without significant delays, as shown in Table 1-2.

Level of service (LOS) is a qualitative measure of the operating conditions within a traffic stream and the perception of those conditions by motorists. LOS is based on the average stopped delay per vehicle for various movements within an intersection. Factors describing the LOS include speed, travel time, maneuverability, and safety. LOS is described by letters ranging from “A” to “F”. LOS designation “A” represents the optimum condition at an intersection, which is characterized by freeflow vehicle movement where drivers are unrestricted in their ability to maneuver. LOS designation “F” represents the worst case, where the capacity of the road/intersection has reached its limit or been exceeded, traffic flow is interrupted, drivers are severely restricted in their ability to maneuver, and significant traffic congestion and delay exists.

Because signalized intersections manage the vehicle flow between two (or more) intersecting roadways, and because they require many vehicles to stop to safely share

the intersection, they serve as excellent indicators of the extent of congestion on the road system, and the ability of the road system to convey traffic.

**Table 1-1
Base Year and Future No Action Travel Times**

From	To	Estimated 2028 Peak Hour Travel Times (minutes)				Change (2028 No Action vs. 2001)		Percent Change (2028 No Action vs. 2001)	
		2001		2028 No Action		AM	PM	AM	PM
		AM	PM	AM	PM				
Princeton Junction	Princeton University	12.3	9.4	22.9	15.1	10.5	5.7	86%	61%
Princeton Junction	Plainsboro Center	18.2	9.8	30.3	12.4	12.1	2.6	66%	26%
Princeton Junction	South Brunswick Ctr.	23.8	26.8	41.8	38.2	18.0	11.4	76%	43%
Princeton Junction	Interchange 8A	22.3	20.9	35.7	30.4	13.4	9.5	60%	45%
Princeton Junction	Hightstown	19.1	21.1	21.4	29.0	2.3	8.0	12%	38%
Princeton University	Princeton Junction	8.5	14.8	13.1	22.4	4.6	7.6	54%	52%
Princeton University	Plainsboro Center	13.3	10.7	22.6	14.1	9.3	3.5	70%	33%
Princeton University	South Brunswick Ctr.	18.8	22.7	30.6	34.8	11.8	12.2	63%	54%
Princeton University	Interchange 8A	25.9	28.6	36.8	39.6	10.9	11.1	42%	39%
Princeton University	Hightstown	24.9	33.5	30.9	48.8	6.0	15.3	24%	46%
Plainsboro Center	Princeton Junction	10.1	15.2	15.3	25.2	5.3	10.0	52%	66%
Plainsboro Center	Princeton University	11.0	11.8	12.8	18.3	1.8	6.5	17%	55%
Plainsboro Center	South Brunswick Ctr.	16.3	23.8	21.4	36.6	5.0	12.8	31%	54%
Plainsboro Center	Interchange 8A	18.3	20.8	19.0	31.1	0.6	10.3	4%	50%
Plainsboro Center	Hightstown	21.4	27.2	25.0	44.9	3.5	17.7	16%	65%
South Brunswick Ctr.	Princeton Junction	28.5	27.0	49.7	36.3	21.2	9.3	74%	35%
South Brunswick Ctr.	Princeton University	24.4	18.9	48.5	27.3	24.2	8.4	99%	45%
South Brunswick Ctr.	Plainsboro Center	26.9	17.9	52.5	22.1	25.5	4.2	95%	23%
South Brunswick Ctr.	Interchange 8A	13.4	12.1	14.6	15.5	1.1	3.4	8%	28%
South Brunswick Ctr.	Hightstown	28.2	30.1	38.0	45.6	9.7	15.6	34%	52%
Interchange 8A	Princeton Junction	23.6	21.0	42.1	30.1	18.5	9.1	79%	43%
Interchange 8A	Princeton University	33.1	26.8	52.4	35.1	19.3	8.3	59%	31%
Interchange 8A	Plainsboro Center	32.8	18.0	47.5	20.8	14.7	2.8	45%	15%
Interchange 8A	South Brunswick Ctr.	19.5	10.8	20.2	15.4	0.6	4.5	3%	42%
Interchange 8A	Hightstown	20.3	23.4	30.4	38.0	10.1	14.6	50%	63%
Hightstown	Princeton Junction	23.6	17.9	43.9	20.2	20.4	2.3	86%	13%
Hightstown	Princeton University	33.9	24.9	64.3	32.0	30.4	7.0	90%	28%
Hightstown	Plainsboro Center	38.9	21.9	68.2	25.4	29.4	3.5	76%	16%
Hightstown	South Brunswick Ctr.	40.4	25.0	66.5	35.4	26.1	10.4	65%	42%
Hightstown	Interchange 8A	25.6	19.1	51.7	27.6	26.1	8.5	102%	44%
		Average:				13.1	8.5	54.6%	41.5%

**Table 1-2
Year 2001 and Future No Action Intersection Delays**

Intersection	Projected Intersection Delays (seconds per vehicle)				Percent Change (2028 No Action vs. 2001)	
	2001		2028 No Action		A.M.	P.M.
	A.M.	P.M.	A.M.	P.M.		
US-1 @ Cozzens Lane	276	297	290	336	5%	13%
US-1 @ Major Road (Sandhill)	259	45	191	112	-26%	149%
US-1 @ New Road	88	57	172	168	95%	195%
NJ-27 @ Raymond Road	10	13	170	18	1600%	38%
NJ-27 @ CR-522	43	36	77	202	79%	461%
Scudders Mill Road @ Schalk's Crossing Road	39	26	206	154	428%	492%
Scudders Mill Road & Dey Road	364	43	697	296	91%	588%
Plainsboro Road & CR-535	23	16	67	167	191%	944%
US-130 @ Dey Road	240	99	341	333	42%	236%
Dey Road & CR-535	46	26	458	213	896%	719%
NJ-32 @ CR-535	174	129	269	234	55%	81%
US-130 @ Friendship Road	187	220	330	467	76%	112%
George's Rd & Kingston Road	17	16	38	18	124%	13%
CR-522 & Kingston Road	314	133	300	203	-4%	53%
US-1 @ CR-522	687	308	496	543	-28%	76%
US-1 @ Ridge Road	188	149	362	264	93%	77%
			Median:		85%	130%

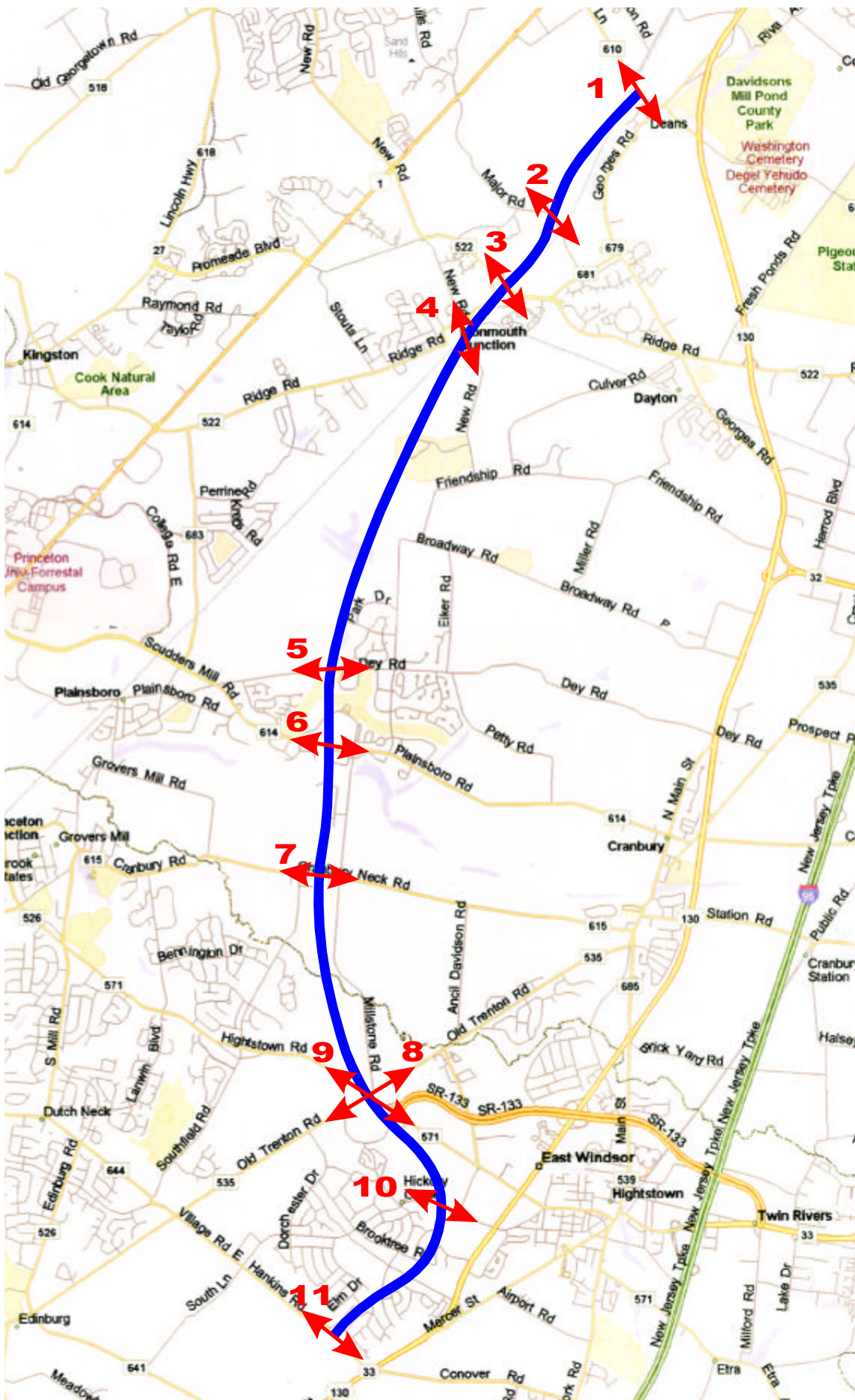
The projected 2028 Level of Service (LOS) designations (AM and PM), with no roadway improvements other than those currently funded, were evaluated using the traffic model. Many existing intersections currently exhibit poor levels of service, but the increases in traffic that are predicted throughout the study area will result in further deterioration of the levels of service at nearly every intersection. Year 2001 and year 2028 no action levels of service are shown in Table 1-3. As can be seen, in 2028 all but one key intersection is expected to exhibit saturated conditions during at least one of the peak hours, and 13 out of 17 exhibit saturated conditions during both morning and evening peak hours. This indicates severe future road congestion, and concomitant declines in regional mobility.

Table 1-3
Year 2001 and Future No Action Levels of Service at Key Intersections

Intersection	Intersection Level of Service			
	2001		2028 No Action	
	A.M.	P.M.	A.M.	P.M.
US-1 @ Cozzens Lane	F	F	F	F
US-1 @ Major Road (Sandhill)	F	D	F	F
US-1 @ New Road	F	E	F	F
NJ-27 @ Raymond Road	A	B	F	B
NJ-27 @ CR-522	D	D	E	F
Scudders Mill Rd @ Schalk's Crossing Rd	D	C	F	F
Scudders Mill Road & Dey Road	F	D	F	F
Plainsboro Road & CR-535	C	B	E	F
US-130 @ Dey Road	F	F	F	F
Dey Road & CR-535	D	C	F	F
NJ-32 @ CR-535	F	F	F	F
NJ-32 @ Herrod Blvd.	F	F	F	F
US-130 @ Friendship Road	F	F	F	F
George's Road & Kingston Road	B	B	D	B
CR-522 & Kingston Road	F	F	F	F
US-1 @ CR-522	F	F	F	F
US-1 @ Ridge Road	F	F	F	F

The origins and destinations of trips using the east-west roads of southwestern Middlesex County and northeastern Mercer County were estimated under various future scenarios using the peak-hour traffic network model. For this EIS, the origins and destinations of trips that are projected to cross a “screenline” were evaluated. The “screenline” is an imaginary line that is used to analyze the total volume of traffic that crosses the imaginary line, which is positioned in a north-south direction roughly halfway between US Route 1 and US Route 130. Because the screenline is oriented north-to-south, the screenline helps to determine the amount of traffic that travels east to west and west to east in the traffic study area. The location of the screenline is shown in Figure 1-5.

The screenline intersects all (eleven) key east-west roads in East Windsor Township, Plainsboro Township, and South Brunswick Township. For the EIS, the total volume of



1 CR-610
(Deans Lane)

2 Major Road

3 CR-522
(Ridge Road)

4 New Road

5 Dey Road

6 Plainsboro
Road

7 Cranbury Neck
Road

8 CR-535

9 CR-571

10 Dutch Neck
Road

11 Hankins Road

0 1 mile
Approx. Scale

Figure 1-5

Screenline Intercepting East - West Roads

traffic crossing the screenline is an indicator of the total demand for east-west travel in the traffic study area (assuming there is no major change in road capacity). The through trips that crossed the screenline each day were determined. This count indicated the potential number of users of a new or improved east-west through route.

In the year 2028 the traffic model projects that a total of about 270,000 to 300,000 vehicles per day will cross the screenline in both directions. About 25 percent of these vehicles are expected to be *through traffic*, passing through the area. Through traffic traveling on the east-west roads contributes to traffic congestion, causes neighborhood impacts (such as noise, vibration, dust, and reduced pedestrian safety), and creates traffic safety issues. Through traffic, by NJDOT definition, is appropriately served on regional arterial highways, and routes for through traffic should be separate from local roadway routes.

The traffic model was used to predict future peak hour *through traffic* volumes crossing the screenline. Table 1-4 shows the significant increases in through traffic that will cross the screenline (i.e., constituting an east-west trip) in future years, for each major east-west road. The analysis shows more than a doubling of through traffic traveling east-west across the screenline by 2028.

Table 1-4
Through Traffic Volumes Crossing the Screenline

Screenline Crossing	Projected Peak-Hour (A.M. + P.M.) Through Traffic Volumes		
	2001	2028 No Action	Percent Change
CR-610 (Deans Lane)	1,457	1,384	-5%
Major Road	83	265	219%
CR-522 (Ridge Road)	66	208	213%
New Road	169	179	6%
Dey Road	194	890	359%
Plainsboro Road	569	835	47%
Cranbury Neck Road	314	886	182%
CR-535	273	1,301	377%
CR-571	981	2,212	126%
Dutch Neck Road	0	20	-
Hankins Road	458	1,938	323%
Total	4,565	10,117	122%

Out of a total of 1,253 miles of federal, state, county, and local roadways (counting each direction of travel on a road as a separate roadway) represented in the traffic study area model, 476 roadway miles are predicted to operate at sub-standard conditions (volume-to-capacity ratio greater than 0.9) during at least one of the peak hours in 2028. Of these 476 miles, 62 roadway miles would require the addition of two, three, or four lanes (by the town, county, state, etc.) to achieve acceptable future volume-to-capacity ratios, as shown in Table 1-5. As the number of miles of additional roadway needed to create acceptable volume-to-capacity ratios increases, it indicates worsening traffic congestion.

**Table 1-5
Additional Lanes Needed to Maintain
Acceptable Volume-Capacity Ratio**

Additional Lanes Needed	Miles of Roadway	
	2001	2028 No Action
1	194.3	413.8
2	20.9	60.3
3	0.1	1.3
4	0.0	0.3
Total	215.3	475.7

Two NJDOT projects in the area (one recently constructed and one recently approved) – the Hightstown Bypass (State Route 133), and the Penns Neck Area Improvements (formerly the Millstone Bypass, located near the intersection of US Route 1 and County Route 571) – were evaluated to determine if capacity improvements in those project areas would reduce congestion on east-west roads in the proposed Route 92 project area. It was determined that the two NJDOT projects do not reduce congestion because they have different users, and do not provide the needed north-south and east-west regional mobility improvements. These are local projects intended to improve traffic flow around Hightstown and to provide intersection improvements on US Route 1 in West Windsor, respectively.

Prior studies of proposed Route 92 also recognized another serious traffic issue; the increasing use of local and secondary neighborhood roads by commercial trucks, as related to the increasing role of the lands surrounding Interchange 8A as a regional warehousing center. To travel between US Route 1, US Route 130, and the New Jersey Turnpike, a substantial number of trucks use Dey Road, Plainsboro Road, Cranbury Neck Road, Washington Road, and other local east-west roads in southwestern Middlesex County/northeastern Mercer County. Long-established residential neighborhoods and local businesses exist alongside the roadways, many of which consist of large frame dwellings set close to the roadways. These structures are subject to vibration caused by the passing of heavy trucks. In addition, these roads are mainly two-lane designs with tight curves and minimal turning radii at intersections, because

many roads evolved from horse trails and wagon trails. The increasing volumes of through truck traffic have diminished quality of life and neighborhood character. Without changes to the arterial highway network, future truck volumes on local east-west roads are predicted to increase by approximately 35 percent, as shown in Table 1-6.

On average, trucks comprise more than five percent of the traffic using the existing east-west roads. One in five of these trucks are using local roads to travel through the towns the roads serve, without servicing residents or businesses in the towns. If non-local commercial truck traffic was diverted to a highway facility designed to carry non-local truck traffic, the impact of increasing through traffic on local traffic and adjacent neighborhood land uses could be minimized.

**Table 1-6
Screenline Crossing Peak Hour Truck Volumes**

Screenline Crossing	PROJECTED PEAK HOUR (A.M. + P.M.) TRUCK VOLUMES		
	2001	2028 No Action	Percent Change
CR-610 (Deans Ln)	117	101	-14%
Major Road	27	69	155%
CR-522 (Ridge Rd)	86	203	135%
New Road	6	13	108%
Dey Road	19	79	308%
Plainsboro Road	33	79	138%
Cranbury Neck Road	46	131	186%
CR-535	550	525	-5%
CR-571	327	403	23%
Dutch Neck Road	319	449	40%
Hankins Road	201	291	45%
Total	1,733	2,343	35%

The distinction between local and through traffic is significant because of the direct relationship between the function and use of a road and the quality of life of those living and conducting business along the road. Roads that carry through traffic typically have significantly greater capacity, and experience greater use by trucks and commercial vehicles than local roads. To preserve quality of life, transportation and community planners generally recommend that through roads be separated from sensitive land uses, such as residences and neighborhood shops and services, using intervening non-residential zones, transitional land uses, and buffer areas.

Existing land use patterns indicate that the study area predominantly consists of suburban residential communities. The major highway corridors generally host commercial, retail, and office land uses. Many of the residential areas have evolved from a quiet rural to intensively suburban character over the past decades. Because municipal master plans and zoning ordinances guide municipal land use patterns and roadway (circulation) systems in each town, it is the municipalities who articulate the desired form of their communities. Example locations where providing new highway capacity for through traffic would help preserve local circulation characteristics and quality of life for residents and small businesses living adjacent to local roads, by reducing the presence of through traffic on local roads, include:

- Plainsboro Center (around the intersection of Plainsboro Road, Dey Road, and Scudders Mill Road). Existing land uses affected by through traffic include the municipal complex, high and low density residential areas, and local commercial areas.
- South Brunswick Center (along County Route 522 in the vicinity of Kingston Lane). Existing land uses affected by through traffic include the municipal complex, high and low-density residential areas, and schools.
- Princeton Junction Center (along County Route 571 in the vicinity of the Northeast Corridor Rail Line). Existing land uses affected by through traffic include a low-density residential area, local businesses, a train station, schools, and parks.

1.3 Project Purpose

As discussed above, the volume of traffic, especially through traffic, traveling to and from the southwestern Middlesex County and northeastern Mercer County study area continues to increase. This is principally attributable to three factors: the strong pace of residential and business development in the overall study area, the emergence of a national-scale warehousing complex in the Interchange 8A area, and the continued growth of the Princeton area and surrounding municipalities as high prestige business and residential locations.

The increasing volume of through traffic is causing worsening traffic congestion, and regional mobility is reduced because of the absence of alternate arterial highway routes. Worsening congestion and reduced mobility lengthen the duration of the work commute by area residents and employees, reduce the convenience and safety of non-work trips by residents, reduce bicycle and pedestrian safety, impact air quality, increase the cost of trucking and business operations, and diminish the quality of life for residents and businesses located along congested local roads.

The absence of sufficient arterial highway routes to carry the increasing percentage of through automobile and truck traffic in this intensively suburbanized area contributes significantly to reduced regional mobility. The increasing volume of through traffic is exacerbating existing congestion. Traffic modeling shows that new regional

transportation system capacity is needed to address the expanding traffic demands of the region and improve regional travel mobility.

Project Purpose: USACE determines that the purpose of NJTA's Route 92 project is to improve regional mobility, especially east-west mobility, for the central New Jersey area in and around southwestern Middlesex County and northeastern Mercer County.

For purposes of this EIS, USACE considers "mobility" to be the movement of people and goods conveniently, reliably, safely, and in acceptable travel time, by transportation system components that will enhance economic development and that are compatible with community and the environment. "Regional mobility" considers improvements at the transportation network scale, such as highways and freeways that principally carry through traffic, and that complement the functions of the local and county road system.

Past and projected residential and commercial growth in the study area, continued expansion of the goods distribution facilities around NJ Turnpike Interchange 8A, and vehicles traveling between the NJ Turnpike and the Princeton/Trenton areas generate significant traffic, considerably overloading the existing roadway network, especially during peak travel times.

One major factor contributing to worsening traffic congestion is that no east-west arterial highway exists in the southwestern Middlesex County/northeastern Mercer County region to serve the increasing traffic volumes traveling between the NJ Turnpike Interchange 8A (including the warehousing complex surrounding the Interchange) and the extensive US Route 1 business center that continues to develop in southwestern Middlesex County / northeastern Mercer County.

A second major factor inhibiting regional mobility is the absence of an east-west arterial highway link between existing major north-south highways to facilitate access by travelers to the least congested north-south route between the New Brunswick area and Princeton/Trenton area. Because no arterial highway linkage currently exists between north-south highways in the study area, traffic cannot efficiently re-route to alternate north-south routes that exhibit available capacity. Because there is no east-west arterial highway connector between existing north-south highway routes, the existing investments in regional mobility (i.e., existing north-south highways) cannot effectively be utilized by drivers. Providing east-west linkage between major north-south highways would increase the efficiency of the existing road network by allowing through traffic to select the most direct, least-congested route for north-south travel.

Finally, because there is no east-west arterial highway in southwestern Middlesex County/northeastern Mercer County, a hierarchical road network that allows through traffic to travel on routes that are separate from local traffic does not exist, diminishing quality of life and creating congestion on the local road system. Increasingly, through traffic and regional traffic is being carried by, and is congesting, local roads.

A hierarchical roadway network is a system that promotes the use of local streets for local access and circulation, and promotes the use of highways for through traffic and large truck traffic. The goal of providing a hierarchical network of roads is to separate local traffic from through traffic. The advantages of a hierarchical network are recognized by the Middlesex County Planning Board, in its Transportation Plan for the County. Creating hierarchical roadway networks is a long-established and widely-applied transportation planning objective that protects the quality of life for residents along local roads, and supports efficient travel for non-local trips. The South Brunswick Township Master Plan recommends that “local traffic should be separated, as much as possible, from through traffic”, which is an expression of hierarchical network principles.

“Through” traffic is traffic that is unrelated to the towns and communities that the roads serve, and is defined as trips having neither the trip origin nor destination in the town (or towns) served by a particular portion of road. Thus, through trips have both their origin and destination outside the local area. Local trips have either an origin or destination (or both) within the local area.

The transportation model prepared for this EIS indicates significant and steadily worsening traffic congestion throughout the study area due to the strong past and future development trends in the region. A hierarchical road network would reduce the impacts that have been caused by increased volumes of through traffic using local roads to travel between the Trenton/Princeton area and New Jersey Turnpike Interchange 8A, and the existing regional warehousing/distribution center around Interchange 8A.

1.4 Description of the NJ Turnpike Authority Proposal

NJTA-proposed Route 92 would be a 6.7 mile limited-access toll highway that would provide express east-west travel capacity, and connect US Route 1 in South Brunswick Township to US Route 130 and the New Jersey Turnpike at Interchange 8A in Monroe Township. Proposed Route 92 would consist of two travel lanes in each direction.

Proposed Route 92 is the NJ Turnpike Authority’s preferred alternative; however, USACE, the preparer of this EIS, is neither an opponent nor a proponent of the NJTA proposal. USACE does not determine a preferred alternative in this EIS. The full range of decision options is available to the District Engineer in responding to the applicants permit application.

The design for Proposed Route 92 provides for a limited number of interchanges connecting to the area road network, minimizing the potential of creating new access to undeveloped lands. Minimizing the number of interchanges that connect to local roads is consistent with New Jersey’s smart growth strategy, because it limits development pressure on land slated for low density development or preservation. The project design includes four interchanges that would connect the highway to existing roads, three of which are state or federal highways, and the fourth is a connection to a major employment center.

The interchange at Perrine Road would provide commuters access to a major employment center, specifically, the approximately 4 million square feet of research and office space, occupied by about 100 corporations, in and near Princeton Forrestal Center. Employees commuting to the Princeton Forrestal Center on proposed Route 92 would be able to access their places of employment from the Perrine Road interchange, without having to travel on US Route 1. Without the Perrine Road interchange, commuters to Princeton Forrestal Center could only reach their destinations by traveling on US Route 1, thereby occupying valuable road capacity on US Route 1.

New interchanges would be constructed at the intersections of:

- proposed Route 92 and US Route 1 (western terminus)
- proposed Route 92 and Perrine Road
- proposed Route 92 and US Route 130
- proposed Route 92 and Turnpike Interchange 8A (eastern terminus)

Improvements to the connecting roads would also occur at the proposed interchanges. Additionally, the project requires the construction of bridges over US Route 1, Ridge Road, Amtrak Northeast Rail Corridor, Devil's Brook and its associated stream corridor, Friendship Road (in two locations), Miller Road, US Route 130, Cranbury-South River Road, and a relocated Route 32 westbound. A toll plaza facility is proposed west of the intersection of proposed Route 92 and US Route 130.

This EIS describes the purpose of and analyzes the need underlying NJTA's proposal to improve regional traffic mobility by creating new east-west arterial highway capacity in southwestern Middlesex County on proposed Route 92. The EIS then evaluates alternatives to the NJTA proposal, to assess whether the project purpose might be accomplished by another plan that would result in lesser environmental impact. Finally, the EIS describes the beneficial and adverse impacts of alternative projects, including proposed Route 92, that have the potential to achieve project purpose with fewest adverse impacts, as determined through an alternatives screening analysis.

The roadway design for proposed Route 92 has evolved significantly over the years, and the changes to the project are a result of:

- the long history of the project, which has allowed many iterations of review to occur. The long history and many reviews have provided an expansive period for public discussion of project issues, and has resulted in design changes by the sponsoring agencies that have avoided or reduced potential project impacts,
- increasingly detailed collection of information about environmental resources and environmental constraints in the project area over the years, and changes to respond to expanded regulation of environmental resources, and
- an improved understanding of how the project might best serve traffic needs with fewer adverse impacts, by illuminating the core function and design as meeting

regional mobility needs that have emerged after decades of public consideration of an east-west connector highway.

An improved understanding of the project's relationship to its surrounding environment and its role in addressing regional mobility needs has resulted in several rounds of improvement in the design of the project. Each round of design adjustment has been characterized by refinements that avoid or further minimize impacts to environmental resources in the project area, and allowed the project to more precisely serve the specific functions of separating through traffic from local traffic, and creating route choices for travelers by linking existing north-south highways, functions otherwise missing from the existing road network.

In the mid-1980s, the *Middlesex County Short Range and Post 1990 Transportation Plan and Program* (October 1985) contemplated the construction of an east-west connector road from New Jersey Turnpike Interchange 8A to US Route 206 in Montgomery Township. A Draft EIS (DEIS) was prepared by NJDOT in 1986. It evaluated two alignments for the right-of-way of Route 92 as then proposed. A revised design was developed to reduce impacts to wetlands in the project corridor.

Another DEIS on proposed Route 92 was prepared under the direction of NJTA in 1994. This DEIS was prepared pursuant to NJ Executive Order No. 215, which requires that environmental studies be performed for state projects. The 1994 DEIS evaluated a route for proposed Route 92 that eliminated the highway segment extending to US Route 206 (a change made in order to reduce wetland impacts).

The 1994 DEIS included an evaluation of the impacts that would result if proposed Route 92 continued its alignment past US Route 1 to NJ Route 27, in Franklin Township. Significant environmental resources were identified along the one-mile project alignment between US Route 1 and NJ Route 27, according to the 1994 DEIS. Construction of the project roadway between US Route 1 and NJ Route 27 would have resulted in impacts to the following:

- Two watercourses (Carters and Heathcote Brooks) and their associated floodplains
- Extensive forested palustrine wetlands
- Several historic archaeological and architectural resources deemed eligible for listing or already listed in the State or National Register of Historic Places
- Green Acres designated parkland

Information about these potentially significant environmental impacts led NJTA to eliminate the US Route 1 to NJ Route 27 segment from the project. NJTA planning and design documentation and NJTA's permit application for the Route 92 project establish the western boundary of the highway at US Route 1, which is the proposed configuration of the project.

In its application to the US Army Corps of Engineers for the proposed Route 92 project, NJTA proposes to improve regional mobility in the project area by providing additional arterial highway capacity that better serves the evolving needs of the region. The NJTA proposal would provide a more efficient limited-access route (i.e., proposed Route 92) for through traffic that now uses the local east-west roads in the project area to travel between US Route 1 and the New Jersey Turnpike, thereby reducing use of local roads by through traffic. In addition, proposed Route 92 would provide access to alternate highway routes for the north-south through traffic using existing US Route 1 between the Princeton area and the New Brunswick area, by improving the ability of through trips to divert from US Route 1 to US Route 130 or the NJ Turnpike.

NJTA's objectives for the proposed Route 92 project, which are consistent with the project purpose described in Section 1.3, consist of the following:

1. *Provide improved access to alternative routes for north-south traffic currently using US Route 1, to relieve congestion on the corridor while reducing the impacts of congestion on the abutting communities. Improve the ability of north-south traffic to divert from US Route 1 to US Route 130 and the New Jersey Turnpike, improving mobility in southern Middlesex County and northeast Mercer County.*

Accomplishing this objective would improve access to other north-south highway corridors in the study area, which have available capacity, thereby providing congestion relief in critical areas along US Route 1, which is forecast to experience significant increases in traffic volume. This objective seeks to better balance future traffic volumes among network highways with available capacity, by improving the ability of traffic to divert to less-congested highways, significantly increasing the flexibility and opportunity for traffic to find less congested routes for regional travel.

2. *Establish a road system that acts to reserve local streets for local traffic and circulation, while providing arterial highway routes for through traffic (especially the increasing volumes of through traffic moving between US Route 1, US Route 130, and the New Jersey Turnpike), thereby reducing the adverse impacts to existing neighborhoods that occur when through traffic and truck traffic use local streets.*

Accomplishing this objective would encourage through traffic to divert to more efficient and faster arterial highway routes, thereby reducing the amount of through traffic using local streets. Reducing through traffic using local streets would similarly reduce its adverse effects on the land uses that abut local streets. The adverse effects that would be reduced include noise, vibration, truck and vehicle emissions, while vehicular, pedestrian and bicycle safety would be improved for residential areas, neighborhood shops and services, community facilities, parks, and schools. Reducing through traffic on local roads would help maintain or restore an environment that is more compatible with the traditional character of the residential neighborhoods in the project study area. An important benefit of achieving this objective would be reduced traffic congestion on the local road network, which would also reduce travel times and improve air quality. Traffic seeking relief from

congestion on US Route 1 would be able to use an arterial highway route to travel to US Route 130 or the NJ Turnpike without impacting local traffic and circulation.

3. *Reduce the presence of truck through traffic on the local roadway network by providing faster and more efficient arterial highway connections for through traffic.*

Accomplishing this objective would reduce the noise, vibration, safety, and aesthetic impacts of truck traffic on residential neighborhoods, schools, and local community facilities. Several commenters on the DEIS for proposed Route 92 indicated the impacts of truck traffic posed a serious concern because it lowered the quality of life for residents living adjacent to local roads being used as through routes.

4. *Work with State agencies and local communities to ensure that the road capacity created by proposed Route 92 is managed and sustained, and that consignment of unused road capacity occurs only through a planned and well coordinated process involving local Master Planning and careful development review. Further, any new road capacity should be designed so as to minimize the potential to contribute to sprawl, which is achieved by limiting creation of new access to undeveloped land (i.e., allow only slow and planned extension of local roads, and create limited access designs for through roads).*

The design for proposed Route 92 features a limited number of interchanges (four are proposed) to connect proposed Route 92 to the existing highway network. The four proposed interchanges are located only at intersections with existing major highways or employment centers. For these reasons, proposed Route 92 has the opportunity to create highway capacity for through trips without significantly exacerbating pressure for uncontrolled development, or “sprawl”, along the proposed corridor.

The small number of connections between proposed Route 92 and intersecting highways (and an existing employment center) significantly reduces the potential for the project to contribute to sprawl, because no new direct access would be created to land planned for low density growth, agriculture, or open space. Given the limited-access design, there will be no direct connection between proposed Route 92 and local roads extending into undeveloped lands along the project route. Connections are proposed only at US Route 1, US Route 130, Interchange 8A, and the interchange at Perrine Rd. The Perrine Rd. interchange would provide direct access to extensive business park development, and avoid the need for commuters to occupy valuable road capacity on US Route 1.

The limited-access design of proposed Route 92 occurred partially in response to the need to avoid creating new routes of direct access to developable land. By avoiding connections with local roads, and by providing connections only to highways and employment centers, proposed Route 92 has incorporated design principles that are consistent with New Jersey’s Smart Growth policies. The design has been coordinated with municipal Master Plans and local efforts to manage future

development, and to discourage direct access to undeveloped lands (and local roads with undeveloped land) along the project corridor.